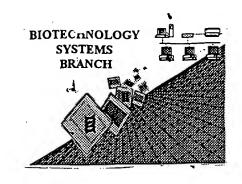
## RAW SEQUENCE LISTING ERROR REPORT



0430

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) detected errors when processing the following computer readable form:

| Application Serial Number: | 10 (000, 15) |  |  |  |  |  |  |
|----------------------------|--------------|--|--|--|--|--|--|
| Source:                    | OIPE         |  |  |  |  |  |  |
| Date Processed by STIC:    | 12/10/01     |  |  |  |  |  |  |

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PLEASE FORWARD THIS INFORMATION TO THE APPLICANT BY EITHER:

- 1) INCLUDING A COPY OF THIS PRINTOUT IN YOUR NEXT COMMUNICATION TO THE APPLICANT, WITH A NOTICE TO COMPLY or,
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FOR CRF SUBMISSION QUESTIONS, PLEASE CONTACT MARK SPENCER, 703-308-4212.

FOR SEQUENCE RULES INTERPRETATION, PLEASE CONTACT ROBERT WAX, 703-308-4216. PATENTIN 2.1 e-mail help: <a href="mailto:patin21help@uspto.gov">patin21help@uspto.gov</a> or phone 703-306-4119 (R. Wax) PATENTIN 3.0 e-mail help: <a href="mailto:patin3help@uspto.gov">patin3help@uspto.gov</a> or phone 703-306-4119 (R. Wax)

TO REDUCE ERRORED SEQUENCE LISTINGS, PLEASE USE THE <u>CHECKER</u> <u>VERSION 3.0 PROGRAM</u>, ACCESSIBLE THROUGH THE U.S. PATENT AND TRADEMARK OFFICE WEBSITE. SEE BELOW:

## Checker Version 3.0

The Checker Version 3.0 application is a state-of the-art Windows based software program employing a logical and intuitive user-interface to check whether a sequence listing is in compliance with format and content rules. Checker Version 3.0 works for sequence listings generated for the original version of 37 CFR §§1.821 – 1.825 effective October 1, 1990 (old rules) and the revised version (new rules) effective July 1, 1998 as well as World Intellectual Property Organization (WIPO) Standard ST.25.

Checker Version 3.0 replaces the previous DOS-based version of Checker, and is Y2K-compliant. Checker allows public users to check sequence listings in Computer Readable form (CRF) before submitting them to the United States Patent and Trademark Office (USPTO). Use of Checker prior to filing the sequence listing is expected to result in fewer errored sequence listings, thus saving time and money.

Checker Version 3.0 can be down loaded from the USPTO website at the following address: http://www.uspto.gov/web/offices/pac/checker

DATE: 12/10/2001

TIME: 15:02:00

OIPE

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Input Set : A:\HERG-KCR1.ST25.txt
                                                                  Does Not Comply
                     Output Set: N:\CRF3\12102001\I000151.raw
                                                                 Corrected Diskette Needed
      3 <110> APPLICANT: Vanderbilt University
                                                                 Smort on p. 143
              Balser, Jeffrey R.
              George, Alfred L.
              Roden, Dan M.
      8 <120> TITLE OF INVENTION: HUMAN KCR1 REGULATION OF HERG POTASSIUM CHANNEL BLOCK
     10 <130> FILE REFERENCE: 1242-49
C--> 12 <140> CURRENT APPLICATION NUMBER: US/10/000,151
C--> 12 <141> CURRENT FILING DATE: 2001-10-30
     12 <150> PRIOR APPLICATION NUMBER: 60/244,340
     13 <151> PRIOR FILING DATE: 2000-10-30
     15 <160> NUMBER OF SEQ ID NOS: 7
     17 <170> SOFTWARE: PatentIn version 3.1
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    41 ttt tta gtg tcc tgc ctc ctc tcc tcc gcc ttc agc cgg gcg ctg cga
                                                                               96
    42 Phe Leu Val Ser Cys Leu Leu Phe Ser Ala Phe Ser Arg Ala Leu Arg
    43
                    20
    45 gag ccc tac atg gac gag atc ttc cac ctg cct cag gcg cag cgc tac
                                                                              144
    46 Glu Pro Tyr Met Asp Glu Ile Phe His Leu Pro Gln Ala Gln Arg Tyr
    47
                                    40
    49 tgt gag ggc cat ttc tcc ctt tcc cag tgg gat ccc atg att act aca
                                                                              192
    50 Cys Glu Gly His Phe Ser Leu Ser Gln Trp Asp Pro Met Ile Thr Thr
                                55
    53 tta cct ggc ttg tac ctg gtg tca gtt gga gtg gtc aaa cct gcc att
                                                                              240
    54 Leu Pro Gly Leu Tyr Leu Val Ser Val Gly Val Val Lys Pro Ala Ile
    55 65
                            70
    57 tgg atc ttt gga tgg tct gaa cat gtt gtc tgc tcc att ggg atg ctc
                                                                              288
    58 Trp Ile Phe Gly Trp Ser Glu His Val Val Cys Ser Ile Gly Met Leu
    61 aga ttt gtt aat ctt ctc ttc agt gtt ggc aac ttc tat tta cta tat
                                                                             336
    62 Arg Phe Val Asn Leu Leu Phe Ser Val Gly Asn Phe Tyr Leu Leu Tyr
                    100
                                        105
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65 ttg ctt ttc cac aag gta caa ccc aga aac aag gct gcc tca agt atc

RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/000,151

384

RAW SEQUENCE LISTING DATE: 12/10/2001 PATENT APPLICATION: US/10/000,151 TIME: 15:02:00

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66 Leu Leu Phe His Lys Val Gln Pro Arg Asn Lys Ala Ala Ser Ser Ile 69 cag aga gtc ttg tca aca tta aca cta gca gta ttt cca aca ctt tat 432 70 Gln Arg Val Leu Ser Thr Leu Thr Leu Ala Val Phe Pro Thr Leu Tyr 73 ttt ttt aac ttc ctt tat tat aca gaa gca gga tct atg ttt ttt act 480 74 Phe Phe Asn Phe Leu Tyr Tyr Thr Glu Ala Gly Ser Met Phe Phe Thr 150 155 77 ctt ttt gca tat ttg atg tgt ctt tat gga aat cat aaa act tca gcc 528 78 Leu Phe Ala Tyr Leu Met Cys Leu Tyr Gly Asn His Lys Thr Ser Ala 170 165 81 ttc ctt gga ttt tgt ggc ttc atg ttt cgg caa aca aat atc atc tgg 576 82 Phe Leu Gly Phe Cys Gly Phe Met Phe Arg Gln Thr Asn Ile Ile Trp 180 185 85 gct gtc ttc tgt gca ggg aat gtc att gca caa aag tta act gag gct 624 86 Ala Val Phe Cys Ala Gly Asn Val Ile Ala Gln Lys Leu Thr Glu Ala 195 200 89 tgg aaa act gag cta caa aag aag gaa gac aga ctt cca cct att aaa 672 90 Trp Lys Thr Glu Leu Gln Lys Lys Glu Asp Arg Leu Pro Pro Ile Lys 215 93 gga cca ttt gca gaa ttc aga aaa att ctt cag ttt ctt ttg gct tat 720 94 Gly Pro Phe Ala Glu Phe Arg Lys Ile Leu Gln Phe Leu Leu Ala Tyr 230 97 tcc atg tcc ttt aaa aac ttg agt atg ctt ttc tgt ttg act tgg ccc 768 98 Ser Met Ser Phe Lys Asn Leu Ser Met Leu Phe Cys Leu Thr Trp Pro 245 250 101 tac atc ctt ctg gga ttt ctg ttt tgt gct ttt gta gta gtt aat ggt 816 102 Tyr Ile Leu Leu Gly Phe Leu Phe Cys Ala Phe Val Val Asn Gly 265 260 105 gga att gtt att ggc gat cgg agt agt cat gaa gcc tgt ctt cat ttt 864 106 Gly Ile Val Ile Gly Asp Arg Ser Ser His Glu Ala Cys Leu His Phe 107 275 280 912 110 Pro Gln Leu Phe Tyr Phe Phe Ser Phe Thr Leu Phe Phe Ser Phe Pro 295 300 960 113 cat ctc ctg tct cct agc aaa att aag act ttt ctt tcc tta gtt tgg 114 His Leu Leu Ser Pro Ser Lys Ile Lys Thr Phe Leu Ser Leu Val Trp 310 315 117 aaa cat gga att ctg ttt ttg gtg gtt acc tta gtc tct gtg ttt tta 1008 118 Lys His Gly Ile Leu Phe Leu Val Val Thr Leu Val Ser Val Phe Leu

127

325

121 gtt tgg aaa ttc act tat gct cat aaa tac ttg cta gca gac aat aga

122 Val Trp Lys Phe Thr Tyr Ala His Lys Tyr Leu Leu Ala Asp Asn Arg

125 cat tat act ttc tat gtg tgg aaa aga gtt ttt caa aga tat gca att

126 His Tyr Thr Phe Tyr Val Trp Lys Arg Val Phe Gln Arg Tyr Ala Ile

360 129 ctg aaa tat ttg tta gtt cca gcc tat ata ttt gct ggt tgg agt ata

130 Leu Lys Tyr Leu Leu Val Pro Ala Tyr Ile Phe Ala Gly Trp Ser Ile

345

1056

1104

1152

RAW SEQUENCE LISTING DATE: 12/10/2001 PATENT APPLICATION: US/10/000,151 TIME: 15:02:00

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Output Set: N:\CRF3\12102001\I000151.raw

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     133 gct gac tca ttg aaa tca aag cca att ttt tgg aat tta atg ttt ttc
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     134 Ala Asp Ser Leu Lys Ser Lys Pro Ile Phe Trp Asn Leu Met Phe Phe
     135 385
                              390
                                                  395
     137 ata tgc ttg ttc att gtt ata gtt cct cag aaa ctg ctg gaa ttt cgt
                                                                                1248
     138 Ile Cys Leu Phe Ile Val Ile Val Pro Gln Lys Leu Leu Glu Phe Arg
                                              410
                          405
     141 tac ttc att tta cct tat gtc att tat agg ctt aac ata act ctg cct
                                                                               1296
     142 Tyr Phe Ile Leu Pro Tyr Val Ile Tyr Arg Leu Asn Ile Thr Leu Pro
                     420
                                          425
     145 ccc aca tcc aga ctt gtt tgt gaa ctg agt tgc tat gca att gtt aat
                                                                               1344
     146 Pro Thr Ser Arg Leu Val Cys Glu Leu Ser Cys Tyr Ala Ile Val Asn
                                      440
     149 ttc ata act ttt tac atc ttt ctg aac aag act ttt cag tgg cca aat
                                                                               1392
     150 Phe Ile Thr Phe Tyr Ile Phe Leu Asn Lys Thr Phe Gln Trp Pro Asn
                                  455
     153 agt cag gac att caa agg ttt atg tgg taa tatcagtgat attttgaact
                                                                               1442
     154 Ser Gln Asp Ile Gln Arg Phe Met Trp
     155 465
                             470
W--> 157 gtaaaaatgg acttaataat agaccatttc tacaaagaac aactgaatag gnggaaaaca
                                                                               1502
     159 tggaatttct tttaggtgca gtggtggtct tcaaattaca ttagtttttt taatatatat
                                                                               1562
     161 tttaaacata tgtaagaaat taagtggcaa agaactggga aagcttaaga cctgcttcaa
                                                                               1622
W--> 163 angcctgaat aatgggaaaa taaanwngtt tncagatatc tcatatcgct cnnnknatgn
                                                                               1682
W--> 165 tggcccytmn caangcttgg gaatgkttnn wntgnataag ttnattaaan ctgggnntgc
                                                                               1742
W--> 167 tnnmwatnac ttnnnkncca nccwnnnwac natgnnntan nnantattta caaaggtcag
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     192 Glu Pro Tyr Met Asp Glu Ile Phe His Leu Pro Gln Ala Gln Arg Tyr
                                      40
     196 Cys Glu Gly His Phe Ser Leu Ser Gln Trp Asp Pro Met Ile Thr Thr
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     200 Leu Pro Gly Leu Tyr Leu Val Ser Val Gly Val Val Lys Pro Ala Ile
     204 Trp Ile Phe Gly Trp Ser Glu His Val Val Cys Ser Ile Gly Met Leu
                         85
                                              90
     208 Arg Phe Val Asn Leu Leu Phe Ser Val Gly Asn Phe Tyr Leu Leu Tyr
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RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/000,151

DATE: 12/10/2001
TIME: 15:02:00

Input Set : A:\HERG-KCR1.ST25.txt

Output Set: N:\CRF3\12102001\I000151.raw

| 212<br>213 | Leu   | Leu        | Phe<br>115 | His        | Lys        | Val        | Gln        | Pro<br>120 | Arg        | Asn        | Lys        | Ala        | Ala<br>125 | Ser        | Ser        | Ile        |
|------------|---|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| 216<br>217 | Gln   | Arg<br>130 | Val        | Leu        | Ser        | Thr        | Leu<br>135 | Thr        | Leu        | Ala        | Val        | Phe<br>140 | Pro        | Thr        | Leu        | Tyr        |
|            | Phe<br>145                                    | Phe        | Asn        | Phe        | Leu        | Tyr<br>150 | Tyr        | Thr        | Glu        | Ala        | Gly<br>155 | Ser        | Met        | Phe        | Phe        | Thr<br>160 |
| 224<br>225 | Leu   | Phe        | Ala        | Tyr        | Leu<br>165 | Met        | Cys        | Leu        | Tyr        | Gly<br>170 | Așn        | His        | Lys        | Thr        | Ser<br>175 | Ala        |
|            | Phe   | Leu        | Gly        | Phe<br>180 |            | Gly        | Phe        | Met        | Phe<br>185 | Arg        | Gln        | Thr        | Asn        | Ile<br>190 | Ile        | Trp        |
|            | Ala   | Val        | Phe<br>195 |            | Ala        | Gly        | Asn        | Val<br>200 | Ile        | Ala        | Gln        | Lys        | Leu<br>205 |            | Glu        | Ala        |
|            | Trp   | Lys<br>210 |            | Glu        | Leu        | Gln        | Lys<br>215 |            | Glu        | Asp        | Arg        | Leu<br>220 |            | Pro        | Ile        | Lys        |
| 240        | Gly<br>225                                    |            | Phe        | Ala        | Glu        | Phe<br>230 |            | Lys        | Ile        | Leu        | Gln<br>235 |            | Leu        | Leu        | Ala        | Tyr<br>240 |
|            |   | Met        | Ser        | Phe        | Lys<br>245 |            | Leu        | Ser        | Met        | Leu<br>250 |            | Cys        | Leu        | Thr        | Trp<br>255 |            |
|            | Tyr   | Ile        | Leu        | Leu<br>260 |            | Phe        | Leu        | Phe        | Cys<br>265 |            | Phe        | Val        | Val        | Val<br>270 |            | Gly        |
|            | Gly   | Ile        | Val<br>275 |            | Gly        | Asp        | Arg        | Ser<br>280 | Ser        | His        | Glu        | Ala        | Cys<br>285 |            | His        | Phe        |
|            | Pro   | Gln<br>290 |            | Phe        | Tyr        | Phe        | Phe<br>295 |            | Phe        | Thr        | Leu        | Phe<br>300 |            | Ser        | Phe        | Pro        |
| 260        | His   |            | Leu        | Ser        | Pro        | Ser<br>310 |            | Ile        | Lys        | Thr        | Phe<br>315 |            | Ser        | Leu        | Val        | Trp<br>320 |
|            |   | His        | Gly        | Ile        | Leu<br>325 |            | Leu        | Val        | Val        | Thr<br>330 |            | Val        | Ser        | Val        | Phe<br>335 |            |
|            | Val   | Trp        | Lys        | Phe<br>340 |            | Tyr        | Ala        | His        | Lys<br>345 |            | Leu        | Leu        | Ala        | Asp<br>350 |            | Arg        |
|            | His   | Tyr        | Thr<br>355 | Phe        | Tyr        | Val        | Trp        | Lys<br>360 | Arg        | Val        | Phe        | Gln        | Arg<br>365 | Tyr        | Ala        | Ile        |
| 276<br>277 | Leu   | Lys<br>370 | Tyr        | Leu        | Leu        | Val        | Pro<br>375 | Ala        | Tyr        | Ile        | Phe        | Ala<br>380 | Gly        | Trp        | Ser        | Ile        |
|            | Ala<br>385                                    | Asp        | Ser        | Leu        | Lys        | Ser<br>390 | Lys        | Pro        | Ile        | Phe        | Trp<br>395 | Asn        | Leu        | Met        | Phe        | Phe<br>400 |
| 284<br>285 | Ile   | Cys        | Leu        | Phe        | Ile<br>405 | Val        | Ile        | Val        | Pro        | Gln<br>410 | Lys        | Leu        | Leu        | Glu        | Phe<br>415 | Arg        |
|            |   |            |            |            |            |            |            |            | Tyr<br>425 |            |            |            |            |            |            | Pro        |
| 292<br>293 | Pro   | Thr        | Ser<br>435 | Arg        | Leu        | Val        | Cys        | Glu<br>440 | Leu        | Ser        | Cys        | Tyr        | Ala<br>445 | Ile        | Val        | Asn        |
| 296<br>297 | Phe   | Ile<br>450 | Thr        | Phe        | Tyr        | Ile        | Phe<br>455 | Leu        | Asn        | Lys        | Thr        | Phe<br>460 | Gln        | Trp        | Pro        | Asn        |
|            | Ser<br>465                                    | Gln        | Asp        | Ile        | Gln        | Arg<br>470 | Phe        | Met        | Trp        |            |            |            |            |            |            |            |
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RAW SEQUENCE LISTING DATE: 12/10/2001 PATENT APPLICATION: US/10/000,151 TIME: 15:02:00

Input Set : A:\HERG-KCR1.ST25.txt

Output Set: N:\CRF3\12102001\1000151.raw

| 309  |     |     |       |      |      | Homo sapiens |                |          |      |               |          |             |       |          |           |          |     |
|--|-----|-----|-------|------|------|--------------|----------------|----------|------|---------------|----------|-------------|-------|----------|-----------|----------|-----|
| 1  |     |     |       |      |      |              | Glv            | ніс      | Va 1 | Δla           | Pro      | Gln         | Asn   | Thr      | Phe       | Leu      | Asp |
| 316         Asn         Ala         Arg         Val         Glu         Asn         Ala         Arg         Val         Glu         Tyr         Cys         Ala         Hee         Asp         Phe         45         Asp         Phe         45         Asp         Phe         45         Asp         Phe         Cys         Gly         Tyr         Ser         Arg         Ala         Glu         Val         Met         Gln         Arg         Pro         Cys         Asp         Phe         Leu         His         Gly         Pro         Arg         Thr         Glu         Arg         Ala         Ala         Ala         Ala         Ala         Leu         His         Gly         Pro         Arg         Thr         Glu         Arg         Ala         Ala         Ala         Ala         Leu         Leu         Leu         Leu         Arg         Ala         Ala         Glu         Ala   |     |     | 110   | vai  | 1119 |              | O <sub>1</sub> | 1110     | , 41 | 71 <u>1</u> u |          | 0211        |       |          |           |          |     |
| Section   Sect | 315 |     | Ile   | Ile  |      | Lys          | Phe            | Glu      | Gly  |               | Ser      | Arg         | Lys   | Phe      |           | Ile      | Ala |
| 323         Cys         Glu Leu         Cys         Gly         Tyr         Ser         Arg         Ala         Glu         Val         Met         Gln         Arg         Pro         Cys         55         60         70         60         70<  | 319 | Asn | Ala   | -    | _    | Glu          | Asn            | Cys      |      | Val           | Ile      | Tyr         | Cys   |          | Asp       | Gly      | Phe |
| 327         Thr Cys Asp         Phe Leu His Gly Pro         Arg Thr Gln Arg Arg Arg Arg Ala Ala Ala Ala 328 65         Ala Clu Cys Bey Pro         Ala Clu Cys Bey Pro         Arg Thr Gln Arg Lys Arg Lys Bey Pro         Ala Clu Cys Pro         Arg Lys Pro         Arg Lys Pro         Ala Clu Cys Pro         Boundard Pro         Ala Cys Pro         Arg Lys Pro         Ala Cys Pro         Arg Lys Pro         Arg Pro         Ala Ser Pro         Arg Pro  | 323 | Cys |       |      | Cys  | Gly          | Tyr            |          | -    | Ala           | Glu      | Val         |       | Gln      | Arg       | Pro      | Cys |
| 331         Gln         H1e         Ala         Gln         Ala         Leu         Leu         Glu         Glu         Glu         Arg         Lys         Val         95           335         Ala         Phe         Tyr         Arg         Lys         Asp         Gly         Ser         Cys         Phe         Leu         Cys         Leu         Val         Asp         Val           336         -         100         100         -         -         105         -         -         110         -         110         -         110         -         110         -         110         -         110         -         110         -         110         -         110         -         -         110         -         -         110         -   | 327 |     |       | Asp  | Phe  | Leu          |                |          | Pro  | Arg           | Thr      |             |       | Arg      | Ala       | Ala      |     |
| 332         Name         Tyr         Arg         Lys         Asp         Gly         Ser         Cys         Phe         Leu         Cys         Leu         Val         Asp         Val         Asp         Val         105         105         110         110         110         110         130         110 <td></td> <td></td> <td>Ile</td> <td>Ala</td> <td>Gln</td> <td>Ala</td> <td></td> <td>Leu</td> <td>Gly</td> <td>Ala</td> <td>Glu</td> <td></td> <td>Arg</td> <td>Lys</td> <td>Val</td> <td>Glu</td> <td></td>   |     |     | Ile   | Ala  | Gln  | Ala          |                | Leu      | Gly  | Ala           | Glu      |             | Arg   | Lys      | Val       | Glu      |     |
| 336         100         4sp         6ly         Asp         6ly         Ala         Val         1le         Hee         1le         Leu         Asp         Asp         1le         Val         Val         Leu         Asp         Asp         Met         Val         Ile         Hee         Asp         Met         Val         Gly         Ser         Pro         Ala         His         Asp         Met         Val         Gly         Ser         Pro         Ala         His         Asp         Met         Val         Gly         Ser         Pro         Ala         His         His         Arg         Ala         Ile         Narg         Arg         Ala         Ile         Narg         Arg         Ala         Ile         Narg         Ile  | 332 |     |       |      |      | 85           |                |          |      |               | 90       |             |       |          |           | 95       |     |
| 340       115       125       120       125       125       125       125       135       135       136       136       140       136       140       130       135       140       130       140       130       135       140       130       140       135       140       140       130       143       145       150       150       177       160       155       160       155       160       155       155       160       155       160       155       160       170       170       170       175       1  |     | Ala | Phe   | Tyr  |      | Lys          | Asp            | Gly      | Ser  |               | Phe      | Leu         | Cys   | Leu      |           | Asp      | Val |
| 343         Phe         Glu         Val         Met         Glu         Lys         Asp         Met         Val         Gly         Fro         135         Tro         Leu         140         Tro         140         133         140 <td></td> <td>Val</td> <td>Pro</td> <td></td> <td>Lys</td> <td>Asn</td> <td>Glu</td> <td>Asp</td> <td>_</td> <td>Ala</td> <td>Val</td> <td>Ile</td> <td>Met</td> <td></td> <td>Ile</td> <td>Leu</td> <td>Asn</td>  |     | Val | Pro   |      | Lys  | Asn          | Glu            | Asp      | _    | Ala           | Val      | Ile         | Met   |          | Ile       | Leu      | Asn |
| 347         Thr Asn His Arg         Gly Pro Pro Pro Thr Ser Trp Leu Ala Pro Gly Arg Ala 348         145         150         150         155         155         160         351         Lys Thr Phe Arg Leu Lys Leu Pro Ala Leu Pro 170         155         160         351         Lys Thr Phe Arg Leu Lys Leu Pro 165         160         155         170         170         175         180         180         180         180  | 343 | Phe |       | Val  | Val  | Met          | Glu            |          | Asp  | Met           | Val      | Gly         |       | Pro      | Ala       | His      | Asp |
| 348       145       r       150       r       155       r       156       r       150       150       160       150       160       170       160       160       170       170       160       170  |     | Thr |       | Ніс  | Δra  | Glv          | Pro            |          | Thr  | Ser           | Tro      | Len         |       | Pro      | Glv       | Arσ      | Αla |
| 351         Lys         Thr         Phe         Arg         Leu         Lys         Leu         Pro         Ala         Leu         Leu         Ala         Leu         Thr         Ala         Ala         Ala         Leu         Thr         Ala         Pro         Ala         Ala         Ala         Bly         Ala         Bly         Ala         Bly         Ala         Pro         Bly         Ala         Pro         Bly         Ala         Bly         Ala         Pro         Bly         Ala         Pro         Bly         Ala         Pro         Bly         Ala         Pro         Bly         Pro         Bly         Ala         Ala         Ala         Pro         Bly         Ala         Ala <td></td> <td></td> <td>71511</td> <td>1110</td> <td>1119</td> <td>011</td> <td></td> <td>110</td> <td>1114</td> <td>501</td> <td>115</td> <td></td> <td>112.4</td> <td>110</td> <td></td> <td> 9</td> <td></td>   |     |     | 71511 | 1110 | 1119 | 011          |                | 110      | 1114 | 501           | 115      |             | 112.4 | 110      |           | 9        |     |
| 355         Glu         Ser         Val         Arg         Ser         Gly         Gly         Gly         Gly         Gly         Ala         Gly         Ala         Gly         Ala         Gly         Ala         Pro         Gly         Ala         Pro         Ala         Pro         Gly         Ala         Ala         Pro         Ser         Ser         Gly         Ala         Ala         Pro         Ser         Gly         Ala         Ala <td></td> <td></td> <td>Thr</td> <td>Phe</td> <td>Arg</td> <td>Leu</td> <td>Lys</td> <td>Leu</td> <td>Pro</td> <td>Ala</td> <td>Leu</td> <td>Leu</td> <td>Ala</td> <td>Leu</td> <td>Thr</td> <td>Ala</td> <td>Arg</td>   |     |     | Thr   | Phe  | Arg  | Leu          | Lys            | Leu      | Pro  | Ala           | Leu      | Leu         | Ala   | Leu      | Thr       | Ala      | Arg |
| 356       180       180       185       190       190       191       1  |     |     |       |      |      | -            |                |          |      |               |          |             |       |          |           |          |     |
| 359       Ala       Val       Val       Asp       Leu       Thr       Pro       Ala       Ala       Pro       Ser       Ser       Glu       Asp       Leu       Thr       Ala       Met       Asp       Asp       His       Val       Ala       Gly       Asp       Ala       His       Val       Ala       Asp       Asp       Ala       Ala       Ala       Ala       Asp       A  |     | Glu | Ser   | Ser  |      | Arg          | Ser            | Gly      | Gly  |               | Gly      | Gly         | Ala   | Gly      |           | Pro      | Gly |
| 360       195       200       200       205       205       205       363       363       364       Leu Ala Leu Asp Glu Asp Glu Val Thr Ala Met Asp Asn His Val Ala Gly 364       210       215       215       220       220       220       364       210       368       225       220       230       215       220       220       220       240       368       225       230       230       240       368       225       235       240       369       369       368       225       240       230       240       235       250       240  |     | 712 | บรา   | Wa 1 |      | λαn          | Wa 1           | λαn      | LOU  |               | Dro      | λla         | λla   | Dro      |           | Sar      | Glu |
| 364       210       215       220         367       Leu       Gly       Pro       Ala       Glu       Glu       Arg       Arg       Ala       Leu       Val       Gly       Pro       Gly       Ser       Pro         368       225       T       T       230       T       T       235       T       T       Cyd       240         371       Pro       Arg       Ser       Ala       Pro       Gly       Gln       Leu       Pro       Ser       Pro       Arg       Ala       His       Ser       Leu         372       T       T       Asp       Ala       Ser       Gly       Ser       Cys       Ser       Leu       Ala       Arg       Ala       Arg       Ser       Leu       Ala       Arg       Thr       Arg       Arg       Ala       Ser       Ila       Ser       Ila       Ser       Ila       Ser       Ila       Ila <t< td=""><td></td><td>Ата</td><td>Val</td><td></td><td>Val</td><td>ASP</td><td>vaı.</td><td>АЗР</td><td></td><td>1111.</td><td>PIU</td><td>нта</td><td>Ата</td><td></td><td>Ser</td><td>ser</td><td>Giu</td></t<>   |     | Ата | Val   |      | Val  | ASP          | vaı.           | АЗР      |      | 1111.         | PIU      | нта         | Ата   |          | Ser       | ser      | Giu |
| 367         Leu         Gly         Pro         Ala         Glu         Glu         Arg         Arg         Ala         Leu         Val         Gly         Pro         Gly         Ser         Pro           368         225         236         230         235         235         240           371         Pro         Arg         Ser         Ala         Pro         Gly         Gl         Ser         Pro         Arg         Ala         His         Ser         Leu           372   |     | Ser |       | Ala  | Leu  | Asp          | Glu            |          | Thr  | Ala           | Met      | Asp         |       | His      | Val       | Ala      | Gly |
| 368       225       230       235       246         371       Pro Arg Ser Ala Ser Ala Pro Gly Gln Leu Pro Ser Pro Arg Ala His Ser Leu Ala Arg  |     | _   |       | _    |      | <b>a</b> 3   | <b>a</b> 3     |          |      |               | <b>-</b> | **- 1       |       | <b>D</b> | <b>a1</b> | <b>3</b> | D   |
| 371 Pro Arg Ser Ala Pro Gly Gln Leu Pro Ser Pro Arg Ala His Ser Leu 372  |     |     | GTA   | Pro  | АТа  | GIu          |                | Arg      | Arg  | Ата           | ьеи      |             | СТА   | Pro      | GIY       | ser      |     |
| 372  |     |     | Δrσ   | Ser  | Δla  | Pro          |                | Gln      | Leu  | Pro           | Ser      |             | Arσ   | Δla      | His       | Ser      |     |
| 375       Asn Pro Asp Ala Ser Ala Ser Gly Ser Ser Cys Ser Leu Ala Arg Thr Arg Ser 265       Arg Elu Ala Arg Thr Arg Ser 270         376       Fro Ser Cys Ala Ser Cys Ala Ser Val Arg Arg Arg Ala Ser Ser Ala Asp Asp Ile 280         380       Fro Ser Ala Asp Ala Asp Ala Ser Cys Ala Ser Ser Ala Asp Asp Ile 280         383       Glu Ala Met Arg Ala Gly Val Leu Pro Pro Pro Pro Arg His Ala Ser 384         384       Fro Ser Ala Arg Ala Ser Ser Ala Ala Ser Ser Ala Ala Ser Ser Ser Ala Ala Ser Ser Ser Ala Ala Ser Ser Ala Ala Ser Ser Ser Ala Ser Ser Ala Ser Ser Ser Ser Ala Ser Ser Ser Ala Ser Ser Ser Ala Ser Ser Ser Ser Ala Ser Ser Ser Ala Ser Ser Ser Ala Ser Ser Ser Ser Ala Ser Ser Ser Ser Ser Ser Ala Ser Ser S  |     | 110 | 9     | 501  |      |              | <b>0</b> -1    | <b>V</b> |      |               |          |             | 9     |          |           |          |     |
| 379 Arg Glu Ser Cys Ala Ser Val Arg Arg Ala Ser Ser Ala Asp Asp Ile 380  |     | Asn | Pro   | Asp  | Ala  | Ser          | Gly            | Ser      | Ser  | Cys           | Ser      | Leu         | Ala   | Arg      | Thr       | Arg      | Ser |
| 380       275       280       285       285         383       Glu Ala Met Arg Ala Gly Val Leu Pro Pro Pro Pro Pro Arg His Ala Ser         384       290       295       295       300       300       418  |     |     |       |      |      |              |                |          |      |               |          |             |       |          |           |          |     |
| 383 Glu Ala Met Arg Ala Gly Val Leu Pro Pro Pro Pro Arg His Ala Ser 384 290 295 295 295 300 300 387 Thr Gly Ala Met His Pro Leu Arg Ser Gly Leu Leu Asn Ser Thr Ser 388 305 310 310 315 315 320 320 391 Asp Ser Asp Leu Val Arg Tyr Arg Thr Ile Ser Lys Ile Pro Gln Ile 392 325 325 325 330 5 330 5 335 335 335 350 360 370 380 380 380 380 380 380 380 380 380 38   |     | Arg | Glu   |      | Cys  | Ala          | Ser            | Val      | -    | Arg           | Ala      | Ser         | Ser   |          | Asp       | Asp      | Ile |
| 384       290       295       300         387       Thr Gly Ala Met His Pro Leu Arg Ser Gly Leu Leu Asn Ser Thr Ser         388       305       310       310         391       Asp Ser Asp Leu Val Arg Tyr Arg Thr Ile Ser Lys Ile Pro Gln Ile         392       325       330         395       Thr Leu Asn Phe Val Asp Leu Lys Gly Asp Pro Phe Leu Ala Ser Pro  |     | ~1  |       |      |      |              | <b>a</b> 1     | **- 1    |      | <b>D</b>      | <b>D</b> | D           | D     |          | ***       |          | 0   |
| 387 Thr Gly Ala Met His Pro Leu Arg Ser Gly Leu Leu Asn Ser Thr Ser 388 305  |     |     |       |      | Arg  | Ата          |                |          |      | Pro           | Pro      |             |       |          | HIS       | Ala      | ser |
| 388       305       310       315       320         391       Asp Ser Asp Leu Val Arg Tyr Arg Thr Ile Ser Lys Ile Pro Gln Ile         392       325       330       335         395       Thr Leu Asn Phe Val Asp Leu Lys Gly Asp Pro Phe Leu Ala Ser Pro  |     |     |       |      | Met  | ніс          |                |          |      | Ser           | Glv      |             |       |          | Ser       | Thr      | Ser |
| 391 Asp Ser Asp Leu Val Arg Tyr Arg Thr Ile Ser Lys Ile Pro Gln Ile 392 325 330 335 335 Thr Leu Asn Phe Val Asp Leu Lys Gly Asp Pro Phe Leu Ala Ser Pro  |     |     | GLY   | AIU  | rice | III          |                | пси      | Arg  | DCI           | OI,      |             | шси   | 21011    | DCI       | 1111     |     |
| 392 325 330 335<br>395 Thr Leu Asn Phe Val Asp Leu Lys Gly Asp Pro Phe Leu Ala Ser Pro   |     |     | Ser   | Asp  | Leu  | Val          |                | Tyr      | Arg  | Thr           | Ile      |             | Lys   | Ile      | Pro       | Gln      |     |
|  |     | -   |       | •    |      |              | -              | -        | _    |               |          |             | -     |          |           |          |     |
| 346 340 345 350  | 395 | Thr | Leu   | Asn  | Phe  | Val          | Asp            | Leu      | Lys  | Gly           | Asp      | ${\tt Pro}$ | Phe   | Leu      | Ala       | Ser      | Pro |
|  | 396 |     |       |      | 340  |              |                |          |      | 345           |          |             | _     |          | 350       |          |     |
| 399 Thr Ser Asp Arg Glu Ile Ile Ala Pro Lys Ile Lys Glu Arg Thr His  |     | Thr | Ser   |      | Arg  | Glu          | Ile            | Ile      |      | Pro           | Lys      | Ile         | Lys   |          | Arg       | Thr      | His |
| 400 355 360 365<br>403 Asn Val Thr Glu Lys Val Thr Gln Val Leu Ser Leu Gly Ala Asp Val   |     | Acn | Val   |      | Glu  | Lvc          | Val            | Thr      |      | Va 1          | Len      | Ser         | Leu   |          | Ala       | Asn      | Val |

VERIFICATION SUMMARY

DATE: 12/10/2001

PATENT APPLICATION: US/10/000,151

TIME: 15:02:01

Input Set : A:\HERG-KCR1.ST25.txt

Output Set: N:\CRF3\12102001\I000151.raw

L:12 M:270 C: Current Application Number differs, Replaced Current Application No

L:12 M:271 C: Current Filing Date differs, Replaced Current Filing Date

L:157 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1

L:163 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1

L:165 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1

L:167 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1

L:169 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1